I CLAIM:

1. A method of granting mini-slots to a cable modem (CM) by a cable modem termination system (CMTS), the method comprising:

maintaining performance statistics of the CM by the CMTS;

receiving a bandwidth request by the CMTS from the CM;

determining whether the CM is dynamic burst profile mode capable after receiving the bandwidth request; and

if the CM is determined to be dynamic burst profile mode capable, assigning a burst profile and granting mini slots to the CM based on the burst profile and the bandwidth request; and

if the CM is determined not to be dynamic burst profile mode capable, assigning another burst profile and granting mini slots to the CM based on the another burst profile and the bandwidth request.

2. A method according to claim 1, wherein the assigning of the another burst profile is based on industry standards.

3. A method according to claim 2, wherein industry specifications comprises Data Over Cable Service interface Specifications (DOCSIS).

4. A method according to claim 1, wherein the assigned burst profile is based on performance measurements and robustness level of the CM.

5. A method according to claim 1, wherein the robustness level of the assigned burst profile is determined by modulation type, the length of a preamble, amount of Reed-Solomon error corrections, and size of a Reed-Solomon codeword.

6. A method according to claim 1 further comprises using a registration process for determining whether the CM is dynamic burst profile mode capable.

7. A method according to claim 1 further comprising using the bandwidth request for determining whether the CM is dynamic burst profile mode capable.

8. A method for increasing physical layer flexibility in a cable modem system, the cable modem system including a cable modem (CM) coupled to a cable modem termination system (CMTS) through an access network, the method comprising;

providing the CMTS that is capable of maintaining performance statistics of the CM and receiving a bandwidth request from the CM;

determining whether the CM is dynamic burst profile mode capable; and

assigning a burst profile from a plurality of burst profiles communicated to the CM; and

granting mini-slots to the CM, the number of mini-slots granted to the CM dependent on whether the CM is dynamic burst profile mode capable.

9. A method according to claim 8, wherein the assigned burst profile is dependent on whether the CM is dynamic burst profile mode capable.

10. A method according to claim 9, wherein if the CM is not dynamic burst profile mode capable, the assigned burst profile is based on industry standards.

11. A method according to claim 10, wherein industry specifications comprises Data Over Cable Service interface Specifications (DOCSIS).

12. A method according to claim 8, wherein if the CM is dynamic burst profile mode capable, the assigned burst profile is based on performance measurements and robustness level of the CM.

13. A method according to claim 12, wherein the robustness level of the assigned burst profile is determined by modulation type, the length of a preamble, amount of Reed-Solomon error corrections, and size of a Reed-Solomon codeword.

14. A method according to claim 8 further comprises determining whether the CM is dynamic burst profile mode capable using a registration process.

15. A method according to claim 8 further comprises determining whether the CM is dynamic burst profile mode capable using a bandwidth request of the CM.